

**TITLE: METHOD FOR BLOCKING GLARE FROM THE SUN
AND APPARATUS THEREFOR**

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TECHNICAL FIELD

10 The present invention pertains generally to motor vehicles, and more particularly to a method and apparatus for blocking the glare of the sun by interposing a sun shield between the glare and an occupant of the vehicle.

15 **BACKGROUND OF THE INVENTION**

 Drivers are sometimes bothered by the glare of the sun, particularly when the sun is low upon the horizon such as occurs at dawn and dusk. At these times the sun can shine directly into the driver's eyes thereby creating a hazardous driving condition which cannot
20 always be alleviated by employing the vehicle sun visor. The glare can come directly from the sun, or from reflections off of the drivers vehicle or the roadway.

 Devices for shielding a driver from sun glare are known in the art. For example, U.S. Patent 3,415,569 shows a sun visor attachment for a vehicle. The attachment comprises a translucent shield and a mounting bracket for securing the device to the conventional visor of
25 the car, so as to prevent sun glare when the sun is low on the horizon. The attachment is translucent rather than opaque so that a driver can see through the device, and the device will not block the field of view of the drive. The attachment may be pivoted to multiple angles. The attachment can block direct sunlight, or sunlight which is reflected off of the hood of the vehicle.

U.S. Patent 4,570,991 discloses an elongated sun visor panel of either opaque or tinted material which is pivoted on the vehicle body adjacent the juncture between the windshield pillar and the windshield header to enable pivotal movement between a vertical stored position overlying the windshield pillar and a horizontal position partially obstructing either the

5 windshield opening or the side window opening. The elongated panel is preferably divided by a living hinge which provides a longitudinal extending hinge axis by which the panel may be folded to closely overlie the shape of the windshield pillar. A pair of such sun visor panels are preferably provided to enable simultaneous shielding of the occupant relative both the windshield and the side window. The sun visor panel is preferably held in the use position and

10 the stored position by Velcro fasteners, magnets, or a detent associated with the pivot.

U.S. Patent 6,086,132 illustrates a sun spot for use as an extension on a vehicle visor of a vehicle where the vehicle visor has a peripheral edge and the vehicle has an interior roof surface and a windshield. The sun spot comprises: a resiliently flexible injection molded shield member of unibody construction having a clip mechanism for adjusting and removing

15 placement of the sun spot along the peripheral edge of the vehicle visor in approximate alignment with a longitudinal axis of the resiliently flexible injection molded shield member. The resiliently flexible injection molded shield member is sized and proportioned for shielding glare without impairing visibility through the windshield and the resiliently flexible injection molded shield member is retainable on the vehicle visor while flexing for conforming with the

20 placement of the vehicle visor against the interior roof surface or the windshield. The resiliently flexible injection molded shield member is constructed for performing under temperature variations without materially failing.

BRIEF SUMMARY OF THE INVENTION

5 The present invention is directed to a method and apparatus for blocking glare from the sun in a motor vehicle such as an automobile, truck, SUV, and the like. A sun shield is attached to a convenient part of the vehicle such as the visor (also known as sun visor) or side window. The sun shield has a plurality of blades which can be selectively rotated by the occupant of the vehicle to block glare from the sun. Glare can be blocked from the eyes of the occupant, or from other body parts such as arms, hands, legs, etc. The present invention can be
10 used to block glare impinging upon the driver of the vehicle, or upon a passenger of the vehicle.

In accordance with a preferred embodiment of the invention, a method for blocking glare from the sun, comprises:

- 15 (a) providing a vehicle having an occupant;
- (b) providing a sun shield which is attachable to the vehicle, the sun shield including:
 - a connector for selectively attaching the sun shield to the vehicle;
 - a swivel attached to the connector;
 - a plurality of blades pivotally attached to the swivel, wherein each of the
20 plurality of blades is rotationally positionable about the swivel;
- (c) the occupant using the connector to attach the sun shield to the vehicle;
- (d) the occupant selecting a blade to be rotated; and,
- (e) the occupant rotating the selected blade so that the selected blade blocks glare from
25 the sun.

Other aspects of the present invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevation view of a sun shield which is attachable to a vehicle for
5 blocking glare from the sun in accordance with the present invention;

FIG. 2 is a side elevation view of the sun shield;

FIG. 3 is a rear elevation view of the sun shield;

FIG. 4 is a front elevation view of the sun shield shown in a “fanned” configuration;

FIG. 5 is a reduced front elevation view of the sun shield attached to the visor of a
10 vehicle;

FIG. 6 is a reduced front elevation view showing two blades being utilized to block two
sources of glare;

FIG. 7 is a reduced front elevation view showing two sun shields attached to the visor;

FIG. 8 is a reduced front elevation view showing the sun shield being selectively
15 positioned on the visor;

FIG. 9 is a reduced front elevation view showing the sun shield attached to the top of
the visor;

FIG. 10 is a reduced side elevation view of the sun shield attached to the top of a side
window;

FIG. 11 is a reduced side elevation view of the sun shield attached to the visor which
20 has been moved to a side position;

FIG. 12 is a reduced side elevation view of the sun shield in a fanned configuration for
blocking glare from a body part of an occupant of the vehicle;

FIG. 13 is a reduced side elevation view of the sun shield installed between the side
25 window and weather-stripping;

FIG. 14 is a reduced side elevation view of the sun shield installed between the side
window and weather-stripping in a fanned configuration; and,

FIG. 15 is a reduced front elevation view of the sun shield placed in a stored
configuration.

DETAILED DESCRIPTION OF THE INVENTION

Referring initially to FIGs. 1-3, there are illustrated front elevation, side elevation, and rear elevation views respectively of a sun shield which is attachable to a vehicle for blocking glare from the sun in accordance with the present invention, the sun shield generally designated as 20. As defined herein glare from the sun can include light received directly from the sun, or sun light which is reflected off of an object such as an occupant's vehicle, another vehicle, or a stationary object such as a roadway or body of water. Additionally, the present invention can be used to block glare from a vehicle occupant's eyes, or from other body parts such as an arm, hand, leg, or face.

Sun shield 20 includes a connector 22 for selectively attaching sun shield 20 to the vehicle 500 (also refer to FIGs 5, 10, 11, and 13). Connector 22 may be any device which is sufficient to attach sun shield 20 to a part of the vehicle (such as a visor, also known as a sun visor) 502 (refer to FIG. 5), or to a side window 504 (refer to FIG. 10). In the shown embodiment connector 22 is a spring clamp, however other connectors having prongs, hinges, hook and loop fasteners, adhesive, etc. could also be employed. In the shown embodiment, connector 22 includes a cushioning material 24 disposed in the jaws of connector 22 to minimize any impressions which might be made upon the visor 502 of the vehicle 500. Also, when not in use, sun shield 20 may left attached to vehicle 500 (refer to FIG. 15), or alternatively may be stored within vehicle 500 and installed on an ad hoc basis.

A swivel 26 is attached to connector 22. Swivel 26 provides an axis about which a plurality of blades 28a through 28e may rotate. Swivel 26 may be a rivet (shown), screw and nut, bolt, post, pin axle, or any other member about which blades 28 may rotate. Plurality of blades 28 are pivotally attached to swivel 26, wherein each of the blades 28 is rotationally positionable about swivel 26 (also refer to FIG. 4). That is, each of blades 28 is independently movable about swivel 26. The shown embodiment includes five blades 28a-28e, however it may be appreciated that other numbers of blades 28 could also be utilized, for example four or seven. Blades 28 are pressed together by swivel 26 so that friction will hold a blade 28 in a selected rotational position. One way of obtaining the friction effect is through the use of a

resilient washer 27. In the shown embodiment, blades 28 have a “racetrack” shape (having rounded ends and a straight mid portion), however other blade shapes could also be used. Blades 28 may be translucent, translucent coated with a ultra-violet light blocking material, or opaque. Blades 28 may be fabricated from plastic, wood, a wood byproduct, or other ridged or semi-ridged material. In an embodiment of the invention, blades 28 are flexible so that they can conform to the interior surface of vehicle 500.

The plurality of blades 28 includes blades 28 having different lengths and having different widths. The different blade 28 lengths and blade 28 widths allows the occupant of the vehicle 500 to optimize the placement of blade 28 with respect to the direction and amount of glare. That is, a blade 28 may be selected such that the selected blade 28 will minimize the amount of viewing obstruction present to the occupant of the vehicle 500 and will still block glare 600 (also refer to FIGs 5 and 9 and the related discussions). In another embodiment of the invention, some of blades 28 have the same width.

In an embodiment of the invention, the plurality of blades 28 are arranged in order from shortest to longest. This is so that when sun shield 20 is installed on the vehicle, access to the shortest blade 28a is not blocked by the larger blades 28. Also, the size of blades 28 can vary. In the shown embodiment the longest blade 28e is about 13 inches long (L), and the shortest blade 28a is about 8 inches long, and the widest blades 28e and 28d are about four inches wide (W) and the narrowest blades 28a and 28b are about three inches wide. It is also noted that if swivel 26 can be disassembled (such as a bolt and nut), blades 28 may be added to or removed from sun shield 20.

FIG. 4 is a front elevation view of sun shield 20 in a “fanned” configuration. Blades 28a through 28e have been rotated to different positions about swivel 26, and will remain in their rotated position.

FIG. 5 is a reduced front elevation view of sun shield 20 attached to visor 502 of vehicle 500. Visor 502 is in a forward position adjacent to the windshield of vehicle 500. In the shown embodiment of the present invention, connector 22 of sun shield 20 has been attached to the lower edge of visor 502. It may be appreciated however, that connector 22 could also be attached to the top (refer to FIG. 9) or side of visor 502. One blade 28b, has been rotated to block glare 600 from the sun. That is, blade 28b has been rotated so that it is

interposed between the glare source 600 and the eyes of an occupant (driver) of vehicle 500, thereby blocking the glare 600 so that the occupant may look in the direction of the glare 600 without being blinded. It is noted that care has been taken in selecting which blade 28 is to be rotated. A blade 28b was selected which has a length and width which will minimize the
5 amount of viewing obstruction presented to the occupant of the vehicle 500. For example, blades 28c, 28d, and 28e, would also serve to block the glare 600, however these blades would present a larger viewing obstruction to the occupant of the vehicle 500. Conversely, blade 28a is too short and would not fully block glare 600.

FIG. 6 is a reduced front elevation view showing two rotated blades 28 being utilized
10 to block two sources of glare 600, such as from the sun directly and from a reflection off of the hood of vehicle 500. The two blades 28 are in different rotational positions in order to block the two sources of glare 600. Blades 28b and 28c have been selected so as to minimized the viewing obstruction presented to the occupant of vehicle 500.

FIG. 7 is a reduced front elevation view showing two sun shields 20 attached to visor
15 502. In this instance, the two sources of glare 600 are separated such that two blades 28 from one sun shield 20 could not block both sources of glare 600, therefore two sun shields 20 are required. It may be appreciated that more than two sun shields 20 could also be employed.

FIG. 8 is a reduced front elevation view showing sun shield 20 being selectively
20 positioned on visor 500. Connector 22 may be moved vertically up or down to effect an adjustment in the area blocked by blades 28. For example, if blade 28a was not quite long enough to block glare 600, the position of connector 22 on visor 502 could be adjusted downward vertically to result in complete glare blocking 600.

FIG. 9 is a reduced front elevation view showing sun shield 20 attached to the top of
25 lowered visor 502. This configuration is useful if the source of glare 600 extends just below the lowered visor 502. Blade 28e may be rotated to block the glare 600 and present a minimal viewing obstruction to the occupant of vehicle 500.

FIG. 10 is a reduced side elevation view of sun shield 20 attached to the top of a side
window 504 which has been rolled down slightly. In this position, sun shield 20 blocks glare 600 coming from the side of the occupant.

FIG. 11 is a reduced side elevation view of sun shield 20 attached to visor 502 which has been moved to a side position. In this position, sun shield 20 is useful in blocking glare 600 from a side view mirror 506.

FIG. 12 is a reduced side elevation view of sun shield 20 in a fanned configuration for blocking glare from a body part of an occupant of vehicle 500. In the fanned configuration, sun shield 20 can block a large area of glare 600 which would otherwise impinge upon an arm, hand, leg, face, or body of the occupant of vehicle 500.

FIG. 13 is a reduced side elevation view of sun shield 500 installed between side window 504 and side window weather-stripping 508. In the shown embodiment blades 28a through 28d have been inserted down between side window 504 and weather-stripping 508. In this embodiment, connector 22 is not utilized, but rather at least one blade 28 is inserted between side window 504 and weather-stripping 508 to anchor sun shield 20.

FIG. 14 is a reduced side elevation view of sun shield 20 installed between side window 504 and weather-stripping 508 with the sun shield 20 in a fanned configuration. Blade 28a has been inserted between side window 504 and weather-stripping 508 to anchor sun shield 20. As with FIG. 13, this configuration is useful in protecting body parts of the occupant from glare 600.

FIG. 15 is a reduced front elevation view of sun shield 20 placed in a stored configuration. In this embodiment when not in use sun shield 20 is left attached to visor 502. The blades of sun shield 20 are rotated so as not to obstruct the view of the occupant.

In terms of use, a method for blocking glare 600 from the sun, includes:

- (a) providing a vehicle 500 having an occupant;
- (b) providing a sun shield 20 which is attachable to vehicle 500, sun shield 20 including:
 - a connector 22 for selectively attaching sun shield 20 to vehicle 500;
 - a swivel 26 attached to connector 22;
 - a plurality of blades 28 pivotally attached to swivel 26, wherein each of the plurality of blades 28 is rotationally positionable about swivel 26;
- (c) the occupant using connector 22 to attach sun shield 20 to vehicle 500;

(d) the occupant selecting a blade 28 to be rotated; and,
(e) the occupant rotating the selected blade 28 so that the selected blade 28 blocks glare 600 from the sun.

5 The method further including;
in step (c), the occupant selecting a plurality of blades 28 to be rotated; and,
in step (d), the occupant rotating the plurality of blades 28 wherein each rotated blade
28 assumes a different rotational position.

10 The method further including::
repeating steps (a) through (e) for at least one additional sun shield 20.

 The method further including:
vehicle 500 having a visor 502, and,
15 in step (c), the occupant attaching sun shield 20 to visor 502.

 The method further including:
in step (c), the occupant selectively vertically positioning connector 22 on visor 502.

20 The method further including:
prior to step (c), the occupant moving visor 502 to one of (1) a forward position, and
(2) a side position.

 The method further including
25 vehicle 500 having a side view mirror 506; and,
when visor 502 is moved to the side position, selected blade 28 blocking glare 600
from side view mirror 506.

 The method further including:
30 vehicle 500 having a side window 504 having a top; and,

in step (c), the occupant attaching sun shield 20 to the top of side window 504.

The method further including:

in step (b), the plurality of blades 28 including blades 28 of different lengths and of
5 different widths;

in step (d), the occupant selecting a blade 28 having a length and width which will
minimize an amount of viewing obstruction presented to an occupant.

The method further including;

10 in step (a), the occupant having a body part;

in step (a), vehicle 500 having a visor 502;

the occupant moving visor 502 to a side position:

in step (c), the occupant attaching sun shield 20 to visor 502; and,

15 in step (e), the occupant rotating the selected blade 28 so that blade 28 blocks glare 600
from the sun which would otherwise impinge upon the body part of the occupant.

In another embodiment of the invention, a method for blocking glare 600 from the sun,
includes:

(a) providing a vehicle 500 having a side window 504 and cooperating weather-
20 stripping 508, vehicle 500 having an occupant;

(b) providing a sun shield 20, including:

-a connector 22 for selectively attaching sun shield 20 to vehicle 500;

-a swivel 26 attached to connector 22;

25 -a plurality of blades 28 pivotally attached to swivel 26, wherein each of the
plurality of blades 28 is rotationally positionable about swivel 26;

(c) the occupant inserting at least one of blades 28 between side window 504 and
weather-stripping 508 so that the inserted blade 28 is captured thereby;

(d) the occupant selecting another of the blades 28 to be rotated; and,

30 (e) the occupant rotating the selected blade 28 so that the selected blade 28 blocks glare
600 from the sun.

The method further including:

the occupant having a body part; and,

5 in step (e), the occupant rotating the selected blade 28 so that the blade 28 blocks glare
600 from the sun which would otherwise impinge upon the body part of the occupant.

The preferred embodiments of the invention described herein are exemplary and
numerous modifications, dimensional variations, and rearrangements can be readily envisioned
to achieve an equivalent result, all of which are intended to be embraced within the scope of
10 the appended claims.